

112839

U.S. DEPARTMENT OF COMMERCE
Patent and Trademark Office

SEARCH REQUEST FORM

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Requestor's Name: 12 BITOMER Serial Number: 09/626,566
 Date: 1/27/04 Phone: 272-0916 Art Unit: (STIC) 1651

Search Topic:

Please write a detailed statement of search topic. Describe specifically as possible the subject matter to be searched. Define any terms that may have a special meaning. Give examples or relevant citations, authors, keywords, etc., if known. For sequences, please attach a copy of the sequence. You may include a copy of the broadest and/or most relevant claim(s).

MEJ

PLEASE SEARCH CLAIM 43 WHERE
 ANY ACRIDINIUM DERIVATIVE WITH
 M-P AT THAT POSITION WHERE
 ONLY
 M = O
 P = PO₃ OR ANY PHOSPHATE
 ANY CATION

PLEASE CALL IF A QUESTION

STAFF USE ONLY

Date completed: 1/29/04
 Searcher: James O'Brien
 Terminal time: PREO
 Elapsed time: 35
 CPU time: 20
 Total time: 20
 Number of Searches: 1 STR
 Number of Databases: 1 STR

Search Site

☐ STIC
☐ CM-1
☐ Pre-S

Type of Search

☐ N.A. Sequence
☐ A.A. Sequence
☐ Structure
☐ Bibliographic

Vendors

☐ IG
☒ 354 STN
☐ Dialog
☐ APS
☐ Geninfo
☐ SDC
☐ DARC/Questel
☐ Other



STIC Search Report

Biotech-Chem Library

STIC Database Tracking Number: 112839

TO: Ralph J Gitomer
Location: rem/3D65
Art Unit: 1651
Thursday, January 29, 2004

Case Serial Number: 09/626566

From: Noble Jarrell
Location: Biotech-Chem Library
Remsen 01B71
Phone: 272-2556

Noble.jarrell@uspto.gov

Search Notes

=> b reg

FILE 'REGISTRY' ENTERED AT 15:07:24 ON 29 JAN 2004
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Property values tagged with IC are from the ZIC/VINITI data file
 provided by InfoChem.

STRUCTURE FILE UPDATES: 28 JAN 2004 HIGHEST RN 642928-00-5
 DICTIONARY FILE UPDATES: 28 JAN 2004 HIGHEST RN 642928-00-5

TSCA INFORMATION NOW CURRENT THROUGH JULY 14, 2003

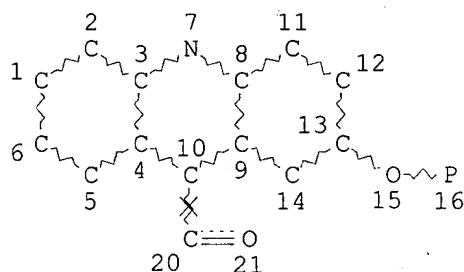
Please note that search-term pricing does apply when
 conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more
 information enter HELP PROP at an arrow prompt in the file or refer
 to the file summary sheet on the web at:
<http://www.cas.org/ONLINE/DBSS/registryss.html>

=> d que stat 116

L14 STR



NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 18

STEREO ATTRIBUTES: NONE

L16 12 SEA FILE=REGISTRY SSS FUL L14

100.0% PROCESSED 2237 ITERATIONS
 SEARCH TIME: 00.00.01

12 ANSWERS

=> b cap

FILE 'CAPLUS' ENTERED AT 15:07:36 ON 29 JAN 2004
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FILE COVERS 1907 - 29 Jan 2004 VOL 140 ISS 5
FILE LAST UPDATED: 28 Jan 2004 (20040128/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

'OBI' IS DEFAULT SEARCH FIELD FOR 'CAPLUS' FILE

=> d que nos 117

L14 STR
L16 12 SEA FILE=REGISTRY SSS FUL L14
L17 1 SEA FILE=CAPLUS ABB=ON PLU=ON L16

=> b marpat

FILE 'MARPAT' ENTERED AT 15:07:44 ON 29 JAN 2004
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FILE CONTENT: 1988-PRESENT (VOL 104 ISS 15-VOL 140 ISS04) (20040123ED)

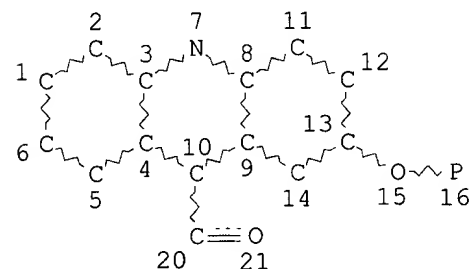
MOST RECENT CITATIONS FOR PATENTS FROM FIVE MAJOR ISSUING AGENCIES
(COVERAGE TO THESE DATES IS NOT COMPLETE):

US 6667161 23 DEC 2003
DE 10317295 24 DEC 2003
EP 1371658 17 DEC 2003
JP 2003346928 05 DEC 2003
WO 2004000750 31 DEC 2003

Structure search limits have been raised. See HELP SLIMIT for the new, higher limits.

=> d que stat 122

L20 STR



NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 18

STEREO ATTRIBUTES: NONE
L22 3 SEA FILE=MARPAT SSS FUL L20

100.0% PROCESSED 2310 ITERATIONS 3 ANSWERS
SEARCH TIME: 00.00.07

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FILE 'CAPLUS' ENTERED AT 15:08:07 ON 29 JAN 2004
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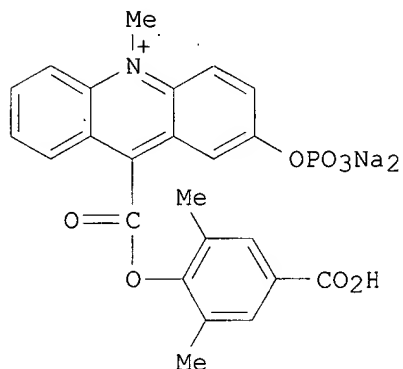
FILE 'MARPAT' ENTERED AT 15:08:07 ON 29 JAN 2004
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
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PROCESSING COMPLETED FOR L17
PROCESSING COMPLETED FOR L22
L23 3 DUP REM L17 L22 (1 DUPLICATE REMOVED)
ANSWER '1' FROM FILE CAPLUS
ANSWERS '2-3' FROM FILE MARPAT

=> d ibib abs hitstr 1;d ibib abs qhit 2-3

CAPLUS Answers *MARPAT Answers*
L23 ANSWER 1 OF 3 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 1
ACCESSION NUMBER: 2001:101348 CAPLUS
DOCUMENT NUMBER: 134:159459
TITLE: Chemiluminescent substrates of hydrolytic enzymes such
as phosphatases
INVENTOR(S): Jiang, Qingping; Natrajan, Anand; Sharpe, David J.;
Wong, Wen-jee; Law, Say-jong
PATENT ASSIGNEE(S): Bayer Corporation, USA
SOURCE: PCT Int. Appl., 156 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001009372	A1	20010208	WO 2000-US20429	20000727
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			

EP 1203091 A1 20020508 EP 2000-950764 20000727
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
 IE, SI, LT, LV, FI, RO, MK, CY, AL
 JP 2003528938 T2 20030930 JP 2001-513627 20000727
 PRIORITY APPLN. INFO.: US 1999-146648P P 19990730
 WO 2000-US20429 W 20000727
 OTHER SOURCE(S): MARPAT 134:159459
 GI



I

- AB Chemiluminescent substrates of hydrolytic enzymes are disclosed having the general Formula Lumi-M-P, where Lumi is a chemiluminescent moiety capable of producing light (a) by itself, (b) with MP attached and (c) with M attached, wherein the different properties of Lumi-M-P and Lumi-M allow them to be distinguished. Lumi includes, but is not limited to, acridinium compds. (e.g. acridinium esters, carboxyamides, thioesters, and oxime esters), reduced forms thereof (e.g. acridans), and spiroacridan compds. M is selected from oxygen, nitrogen and sulfur. P is a group that can be readily removed by hydrolytic enzymes to give Lumi-M and P. The hydrolytic enzyme can be phosphatase, glycosidase, peptidase, protease, esterase, sulfatase, and guanidinobenzoatase. Thus, 2-Phos-DMAE (I) is synthesized and shown to be an excellent substrate of hydrolytic alkaline phosphatase to form 2-OH-DMAE. Both I and 2-OH-DMAE are chemiluminescent, but emit light at different emission maxima when they are treated with H₂O₂ in strong alkaline solution I emits a strong, visible blue light at λ_{max} 478 nm while 2-OH-DMAE emits a strong, visible orange light at λ_{max} 602 nm, thus resulting in a bathochromic shift of emission maximum by 128 nm. One of the advantages in using chemiluminescent acridinium substrates like I to detect hydrolytic enzymes is that the products generated by the enzyme can be accumulated without undergoing significant decomposition during the enzymic reaction. In addition, under certain conditions the chemiluminescence from I is selectively and significantly suppressed, and thereby the overall signal differentiation of 2-OH-DMAE over I is improved. A heterogeneous immunoassay is also provided demonstrating I utility as a substrate for the chemiluminescent detection of TSH in human serum.
- IT **324762-34-7P**
 RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); PRP (Properties); SPN (Synthetic preparation); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); PROC (Process); USES (Uses)

(chemiluminescent substrates of hydrolytic enzymes such as phosphatases)

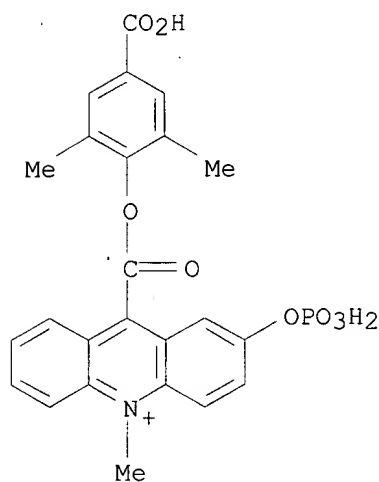
RN 324762-34-7 CAPLUS

CN Acridinium, 9-[(4-carboxy-2,6-dimethylphenoxy)carbonyl]-10-methyl-2-(phosphonooxy)-, salt with trifluoroacetic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 324762-33-6

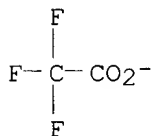
CMF C24 H21 N O8 P



CM 2

CRN 14477-72-6

CMF C2 F3 O2



IT 324762-37-0P

RL: ARG (Analytical reagent use); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)

(chemiluminescent substrates of hydrolytic enzymes such as phosphatases)

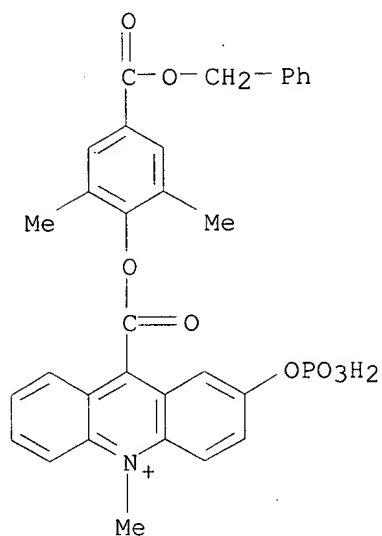
RN 324762-37-0 CAPLUS

CN Acridinium, 9-[[2,6-dimethyl-4-[(phenylmethoxy)carbonyl]phenoxy]carbonyl]-10-methyl-2-(phosphonooxy)-, salt with trifluoroacetic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 324762-36-9

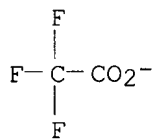
CMF C31 H27 N O8 P



CM 2

CRN 14477-72-6

CMF C2 F3 O2



IT 324762-40-5P 324762-43-8P 324762-46-1P

324762-49-4P

RL: ARG (Analytical reagent use); PRP (Properties); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses) (chemiluminescent substrates of hydrolytic enzymes such as phosphatases)

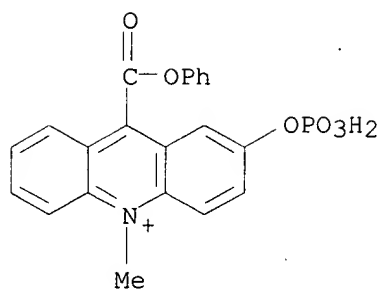
RN 324762-40-5 CAPLUS

CN Acridinium, 10-methyl-9-(phenoxy-carbonyl)-2-(phosphonoxy)-, salt with trifluoroacetic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 324762-39-2

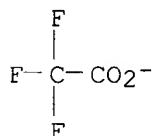
CMF C21 H17 N O6 P



CM 2

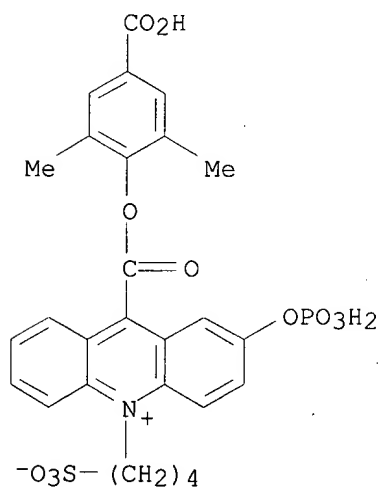
CRN 14477-72-6

CMF C2 F3 O2



RN 324762-43-8 CAPLUS

CN Acridinium, 9-[(4-carboxy-2,6-dimethylphenoxy)carbonyl]-2-(phosphonooxy)-10-(4-sulfobutyl)-, inner salt (9CI) (CA INDEX NAME)



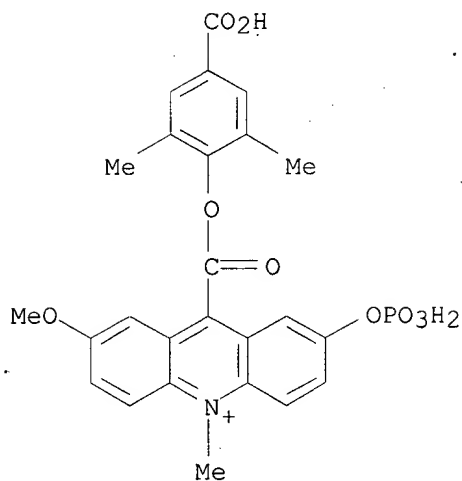
RN 324762-46-1 CAPLUS

CN Acridinium, 9-[(4-carboxy-2,6-dimethylphenoxy)carbonyl]-2-methoxy-10-methyl-7-(phosphonooxy)-, salt with trifluoroacetic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 324762-45-0

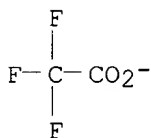
CMF C25 H23 N O9 P



CM 2

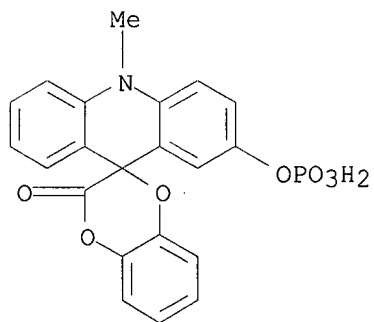
CRN 14477-72-6

CMF C2 F3 O2



RN 324762-49-4 CAPLUS

CN Spiro[acridine-9(10H),2'(3'H)-[1,4]benzodioxin]-3'-one,
10-methyl-2-(phosphonooxy)- (9CI) (CA INDEX NAME)



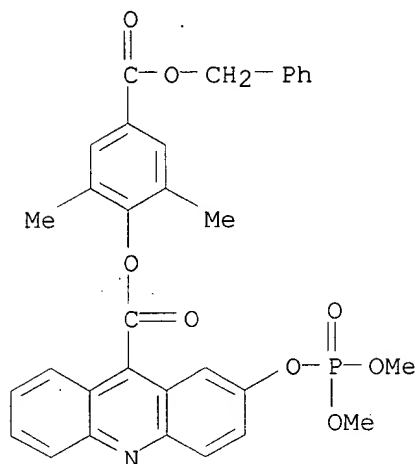
IT 324762-61-0P 324762-62-1P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
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(chemiluminescent substrates of hydrolytic enzymes such as
phosphatases)

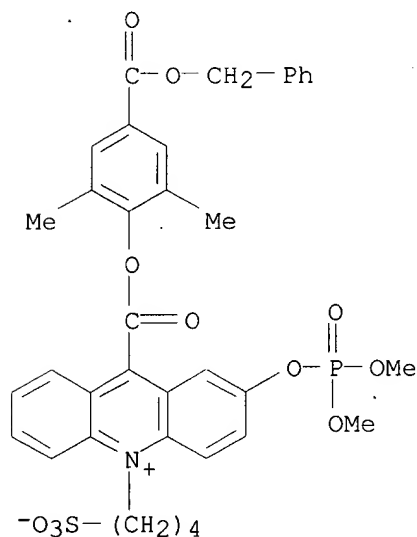
RN 324762-61-0 CAPLUS

CN 9-Acridinecarboxylic acid, 2-[(dimethoxyphosphinyl)oxy]-,

2,6-dimethyl-4-[(phenylmethoxy)carbonyl]phenyl ester (9CI) (CA INDEX NAME)



RN 324762-62-1 CAPLUS
CN Acridinium, 2-[(dimethoxyphosphinyl)oxy]-9-[[2,6-dimethyl-4-[(phenylmethoxy)carbonyl]phenoxy]carbonyl]-10-(4-sulfobutyl)-, inner salt (9CI) (CA INDEX NAME)



REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

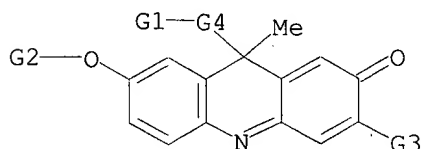
L23 ANSWER 2 OF 3 MARPAT COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 138:268046 MARPAT
TITLE: Membrane transportable fluorescent substrates
INVENTOR(S): Sparks, Alison L.

PATENT ASSIGNEE(S): PE Corporation (NY), USA
 SOURCE: PCT Int. Appl., 49 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

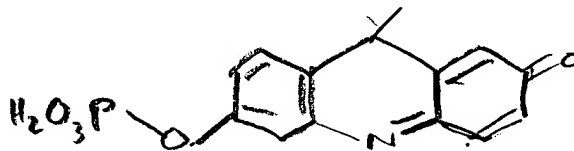
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003025192	A2	20030327	WO 2002-US29600	20020919
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG US 2003103902 A1 20030605 US 2002-246678 20020919 PRIORITY APPLN. INFO.: US 2001-323077P 20010919				

AB Intracellular enzyme-activated fluorescent substrates that can be transported into a cell are provided. The membrane transportable fluorescent substrates are complexes (e.g., ionic complexes) formed between an enzyme activated fluorescent substrate and a carrier mol. The fluorescent substrates can be used in an intracellular assay of enzyme activity and/or expression.

MSTR 7



G1 = CO2H
 G2 = PO3H2
 MPL: claim 32



L23 ANSWER 3 OF 3 MARPAT COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 130:193962 MARPAT
 TITLE: Peroxide-based chemiluminescent assays and chemiluminescent compounds including acridinecarboxylic acid derivatives used therein
 INVENTOR(S): Waldrop, Alexander A., III; Vary, Calvin P. H.
 PATENT ASSIGNEE(S): Maine Medical Center, USA; Capricorn Products, Inc.
 SOURCE: PCT Int. Appl., 59 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9909012	A1	19990225	WO 1998-US17294	19980821
W:	AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
RW:	GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
AU 9891106	A1	19990308	AU 1998-91106	19980821
EP 1019379	A1	20000719	EP 1998-943277	19980821
R:	AT, BE, CH, DE, DK, ES, FR, GB, IT, LI, NL, SE, PT, IE			
JP 2003517426	T2	20030527	JP 2000-509695	19980821
US 2003219844	A1	20031127	US 2003-457385	20030610
PRIORITY APPLN. INFO.:			US 1997-56518P	19970821
			WO 1998-US17294	19980821
			US 2000-463990	20000218

GI

A-C=Z

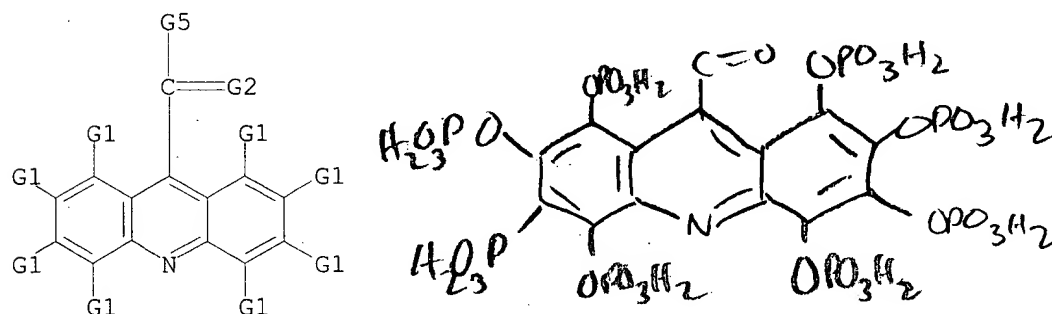
Q

I

AB A compound is provided having formula (I), where C* is an sp² coordinated carbon atom; A is a 9-acridinyl or substituted 9-acridinyl moiety; Z is a moiety that is covalently bonded to C* including, but not limited to O, S, N-R₁ or +N-R₁R₂ where R₁ and R₂ can be independently chosen from hydrogen, alkyl, alkoxy, aryl, alkylaryl, heteroaryl, or heteroalkoxy moiety, each of which may be substituted or unsubstituted; Q is a suitable leaving group under aqueous or mixed aqueous-organic conditions (including, but not limited

to detergent solns., polar solvent mixts., emulsions and multiphase systems) which yields a compound which exhibits chemiluminescent properties in the presence of a peroxide or peroxide-like compound. The disclosed stable, water soluble, acridine compds. (derivs. of 9-acridinecarboxylic acid) react with peroxides to produce a strong and unexpectedly long-lived chemiluminescent activity. Examples of uses include the chemiluminescent detection of glucose oxidase or alkaline phosphatase.

MSTR 1



This file contains CAS Registry Numbers for easy and accurate substance identification. Title keywords, authors, patent assignees, and patent information, e.g., patent numbers, are now searchable from 1907-1966. TIFF images of CA abstracts printed between 1907-1966 are available in the PAGE display formats.

This file supports REGISTRY for direct browsing and searching of all substance data from the REGISTRY file. Enter HELP FIRST for more information.

=> d que nos l19

L14 STR

L16 12 SEA FILE=REGISTRY SSS FUL L14

L19 0 SEA FILE=CAOLD ABB=ON PLU=ON L16

=> b home

FILE 'HOME' ENTERED AT 15:09:02 ON 29 JAN 2004

=>



Creation date: 03-03-2004
Indexing Officer: HTON1 - HUAN TON
Team: OIPEBackFileIndexing
Dossier: 09626566

Legal Date: 10-20-2003

No.	Doccode	Number of pages
1	A...	3
2	SPEC	2
3	CLM	21
4	REM	5

Total number of pages: 31

Remarks:

Order of re-scan issued on